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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,724	11/21/2003	Joseph John Shiang	28230-3	1007

6147 7590 05/11/2006

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

CANNING, ANTHONY J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/725,724

Applicant(s)

SHIANG ET AL.

Examiner

Anthony J. Canning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-22 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 24 March 2006.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
3. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

4. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR

3.73(b).

5. Claims 1, 2, 6, 9, 10, 12, 14-16, and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 9, 10, 12-14 and 18 of U.S. Patent No. 6,703,708 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

U.S. App. 10/725,724	U.S. Patent 6,703,780 B2
Claim 1. An OLED with a first and second electrode, an organic light-emitting layer; and a ceramic output coupler, which comprises a ceramic material and a plurality of voids therein.	Claims 1, 2, 3, 4, 9, and 10. An OLED with first and second electrodes, an organic light emitting layer; and a ceramic output coupler. While voids in the ceramic coupler are not specifically disclosed, ceramics by definition are porous insulators.
Claim 2. The OLED with the limitations from claim 1, the ceramic output coupler includes a ceramic layer containing a light-emitting surface.	Claims 1, 2, 3, 4, 9, and 10. An OLED with first and second electrodes, an organic light emitting layer; and a ceramic output coupler. While voids in the ceramic coupler are not specifically disclosed, ceramics by definition are porous insulators. Further including that the ceramic output coupler includes a ceramic layer containing a light-emitting surface.
Claim 6. The OLED including the limitations of claim 2. with a substrate between the	Claim 9. An OLED with a first and second electrode, an organic light-emitting layer; and

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ceramic output coupler.	a ceramic output coupler with another ceramic layer between the ceramic output coupler and an adjacent layer of the device.
Claims 9 and 10. The OELD including the limitations of claim 2, where the ceramic output coupler is shaped, specifically to have a corrugated or dimpled light-emitting surface.	Claims 1, 10 and 12. An OELD with a first electrode and second electrode, an organic light emitting layer; and a ceramic output coupler. While voids in the ceramic coupler are not specifically disclosed, ceramics by definition are porous insulators. Further including that the output coupler is shaped, specifically to have a corrugated or dimpled light-emitting surface.
Claim 12. The OELD including the limitations of claim 2, including that the ceramic output coupler randomly volume scatters light emitted by the organic light emitting layer to reduce a critical angle loss.	Claims 1, 2, 3, 4, 9, and 10. An OELD with first and second electrodes, an organic light emitting layer; and a ceramic output coupler. While voids in the ceramic coupler are not specifically disclosed, ceramics by definition are porous insulators. Further including that
Claim 14. The device of claim 2, wherein the ceramic output coupler includes, alumina, yttrium oxide, yttrium aluminum oxide, magnesium aluminum oxide, titanium oxide.	Claim 13. An OELD wherein the ceramic output coupler includes alumina, yttrium oxide, yttrium aluminum oxide, magnesium aluminum oxide, titanium oxide.
Claims 15, 16, 18 and 19. An OELD wherein the ceramic output coupler includes a light emitting material, which is ceramic phosphor, YAG:Ce ³⁺ , or a ceramic semiconductor.	Claims 14. An organic EL device wherein the ceramic output coupler includes a light emitting material, which is ceramic phosphor, YAG:Ce ³⁺ , or a ceramic semiconductor.
Claim 20. An OELD with a first and second electrode, an organic light-emitting layer; and a ceramic output coupler, which comprises a ceramic material	Claim 18. Method of forming an OELD with first and second electrodes, an organic light emitting layer; and a ceramic output coupler. While voids in

and a plurality of voids therein, the method of manufacturing thereof.	the ceramic coupler are not specifically disclosed, ceramics by definition are porous insulators.
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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 9, 12, 13, 20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hung et al. (U.S. 6,069,442).

8. Regarding claims 1 and 20, Hung et al. disclose an organic electroluminescent light emitting device and the method therefore (column 1, lines 66-67), comprising: a first electrode (see Fig. 1, item 104; column 2, lines 35-36); a second electrode (see Fig. 1, item 106; column 2, lines 35-36); at least one organic light emitting layer (see Fig. 1, item 108; column 2, lines 35-36); and a ceramic output coupler (see Fig. 1, item 102; column 3, lines 9-18), which comprises a ceramic material and a plurality of voids distributed therein (ceramic by definition is inherently porous).

9. Regarding claim 2, Hung et al. disclose the device of claim 1. Hung et al. further disclose that the device comprises an organic light emitting diode (column 2, lines 53-55); and

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the ceramic output coupler comprises a ceramic layer containing a light emitting surface of the device (column 3, lines 9-18).

10. Regarding claim 9, Hung et al. disclose the device of claim 2. Hung et al. further disclose that the ceramic output coupler comprises a shaped ceramic material attached to the organic light emitting diode (see Fig. 1, items 102 and 108; the ceramic output coupler, 102, is a layer shaped to conform to the other layers).

11. Regarding claim 12, Hung et al. disclose the device of claim 2. Hung et al. further disclose that the ceramic output coupler randomly volume scatters light emitted by the organic light emitting layer to reduce a critical angle loss (this is an inherent property of the ceramic output coupler).

12. Regarding claim 13, Hung et al. disclose the device of claim 12. Hung et al. further disclose that the device comprises an organic light emitting diode (column 2, lines 53-55), the ceramic coupler comprises a ceramic layer containing a light emitting surface of the device (column 3, lines 9-18), and the ceramic output coupler volume contains voids which randomly scatter light emitted by the organic light emitting layer to reduce a critical angle loss (ceramics inherently are a porous material and will therefore randomly scatter light, which will reduce a critical angle loss).

13. Regarding claim 22, Hung et al. disclose the method of claim 20. Hung et al. further disclose forming the first electrode of a transparent conductive material over the ceramic output coupler (see Fig. 1, item 104; column 3, lines 9-18) which comprises a ceramic substrate (see Fig. 1, item 102; column 3, lines 9-18); forming the at least one organic light emitting layer over the first electrode (see Fig. 1, item 108; column 2, lines 35-36); and forming a second electrode

of a metal material over the at least one organic light emitting layer (see Fig. 1, item 106; column 5, lines 22-24).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 3-5 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. (U.S. 6,069,442).

16. Regarding claims 3-5, Hung et al. disclose the ceramic output coupler. Hung et al. fail to specifically disclose the index of refraction of the output coupler, the adjacent layer and the electroluminescent layer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to disclose the index of refraction of the output coupler, the adjacent layer and the electroluminescent layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

17. Regarding claims 14-19, Hung et al. disclose the ceramic output coupler. Hung et al. fail to disclose the material of the ceramic output coupler. It would have been obvious to one having ordinary skill in the art at the time the invention was made to disclose the material of the ceramic output coupler, since it has been held to be within the general skill of a worker in the art to select

a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

18. Claims 1-8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. (U.S. 5,831,699).

19. As to claims 1 and 20, Wright et al. discloses an organic electroluminescent light emitting device and the method therefore (column 3, lines 46-48), comprising: a first electrode (see Fig. 5, item 46; column 8, lines 8-13); a second electrode (see Fig. 5, items 44 and 47; column 9, lines 21-29); at least one organic light emitting layer (see Fig. 5, item 27, column 6, lines 41-46; light emitting diodes commonly have two electrodes); and an output coupler, (column 11, lines 17-22; glass can be a ceramic, and any material includes ceramics which by definition are porous materials). Wright et al. fail to specifically disclose that the output coupler is a ceramic with a plurality of voids. Wright et al. do disclose that the output coupler can be glass, which can be a ceramic, or any other material, which includes ceramics. It would have been obvious to one having ordinary skill in the art at the time the invention was made to specify the output coupler as a porous ceramic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

20. Regarding claim 2, Wright et al. disclose the device of claim 1. Wright et al. further disclose that the device comprises an organic light emitting diode (column 6, lines 41-46); and the ceramic output coupler comprises a ceramic layer containing a light emitting surface of the device (see Fig. 5, item 56; column 9, lines 53-60).

21. Regarding claims 3-8, Wright et al. disclose the device of claims 1 and 2. Wright et al. further disclose a transparent substrate between the ceramic output coupler and the at least one organic light emitting layer, wherein the index of refraction of the ceramic output coupler differs by 0.1 or less from an index of refraction of the substrate (see Fig. 5, item 30; column 9, lines 53-56 and column 10, lines 3-12).

22. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. (U.S. 5,831,699) in view of Hung et al. (U.S. 6,069,442).

23. As to claim 21, Wright et al. disclose the method according to claim 20. Wright et al. further disclose forming an electrode over a first surface of glass or polymer substrate (see Fig. 5, items 30 and 46; column 8, lines 8-13 and column 6, lines 31-33); forming at least one organic light-emitting layer over the first electrode (see Fig. 5, item 27; column 6, lines 41-46); forming a second electrode of a metal material over the at least one organic light-emitting layer (see Fig. 5, items 44, 47 and 52; column 9, lines 9-20); and forming the ceramic output coupler over the second surface of the glass or polymer substrate (column 11, lines 17-22; glass can be a ceramic and any material includes ceramics which by definition are porous materials). Wright et al. fail to specifically disclose that the electrode on the glass or polymer substrate is transparent.

Hung et al. disclose a method of manufacturing an organic electroluminescent device wherein a transparent electrode is formed on a glass substrate (column 5, Example 2, lines 38-41). A transparent electrode on a glass substrate will allow for a brighter display device.

Therefore, it would have been obvious to one having ordinary skill in the art. at the time the invention was made, to modify the organic electroluminescent device of Wright et al. to

include a transparent electrode formed on the glass or polymer substrate, as taught by Hung et al., to improve the brightness of the device.

Allowable Subject Matter

- 24. Claims 10 and 11 contain allowable subject matter.
- 25. As to claim 10, the prior art of record fails to teach or reasonably suggest the shaped ceramic material having a corrugated or dimpled light-emitting surface.
- 26. As to claim 11, claim 11 is allowable for the reasons given in claim 10 and for depending from claim 10.
- 27. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

- 28. The examiner concedes that Teflon is not a ceramic. In light of this a new rejection has been given.

Contact Information

- 29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning
1 May 2006


ASHOK PATEL
PRIMARY EXAMINER